PATENT ABSTRACTS OF JAPAN

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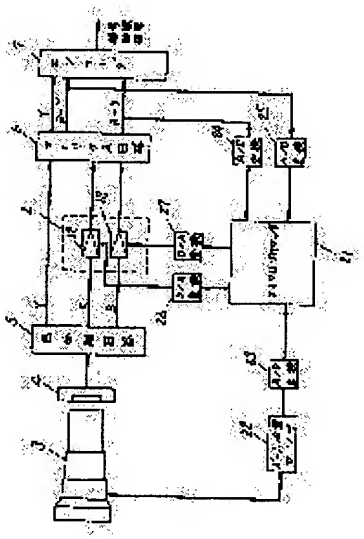
(54) WHITE BALANCE CONTROLLER

(57)Abstract:

PURPOSE: To reduce malfunction of white balance correction by providing a detection means detecting zoom position of a camera lens and controlling the output of a color signal gain control signal in response to the signal level.

CONSTITUTION: A microprocessor 21 controls a zoom position discrimination function, an output function of a color signal control signal and an output of a control signal with a signal from a zoom position sensor 22. That is, when a zoom position is at the WIDE side considered to include lots of lighting color temperature information to generate and output a color signal gain control signal to approach a color difference signal to a white level. Further, it is consider that the most part of screen is chromatic information when the zoom position is at a TELE side. Even when there is a difference with a white level in a color difference output, a color signal gain control signal outputs a data outputted at present to try to prevent decoloring of an object. Thus, malfunction of white balance correction is reduced.



LEGAL STATUS

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* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] this invention relates to the automatic white balance of the electronic camera of a lens exchange formula or high scale-factor zoom lens loading.
[0002]
[Description of the Prior Art] As an automatic white balance method of the conventional electronic camera, there are an outside ** sensor method and a TTL (Through The Lens) method. An outside ** sensor method amends a white balance using the data which measure the color of outdoor daylight and are obtained, and a TTL method computes the color of outdoor daylight from the output signal of an image pck-up sensor, and amends a white balance using the data.
[0003]
[Problem(s) to be Solved by the Invention] However, by the above-mentioned conventional automatic white balance method, since the light source may be different in a place with a camera, and a place with a photographic subject and it measures the color of the outdoor daylight in a camera position by the ** sensor method outside the above in such a case in photoing the photographic subject which exists in the distance with a lens with a long focal distance, amendment of a photographic subject's white balance cannot be performed. moreover, a case so that the above-mentioned TTL method may have the large influence of a photographic subject's own color, a monochromatic photographic subject may be expanded with a lens with a long focal distance and a photograph may be taken -- a photographic subject's own color -- an amendment -- it operated like and there was a problem that amendment of a photographic subject's white balance could not be performed
[0004] It was made in order that this invention might solve the above problems, and when a focal distance is long, it aims at offering the electronic camera which can abolish that the amendment which the automatic white balance mistook is made.
[0005]
[Means for Solving the Problem] In this invention, a means to change the colorimetry data for white balance amendment obtained by the outside ** sensor method or the TTL method according to the focal distance of a lens is established.
[0006]
[Function] For example, in the case of a zoom lens, the amount of amendments which performs mistaken amendment can be reduced by detecting a zoom position and changing colorimetry data according to the focal distance.
[0007]
[Example] Drawing 1 is the block diagram showing the example of this invention. In drawing 1 the taking lens by which 1 can change a focal distance, and 2 Exposure control means, such as a shutter, The image pck-up sensor by which 3 used solid state image pickup devices, such as CCD, and 4 A sample hold circuit and a colorimetry circuit, 5 a memory control circuit and 7 for an A/D converter and 6 An interface circuitry, The external storage with which 8 consists of the hard disk as main storage, memory card, etc., The control unit with which the internal storage as substorage with which 9 is controlled by the memory control circuit 6, and 10 control the colorimetry sensor of outside **, and 11 controls the whole, and SW1 are the white balance amendment circuits where a photography preparation switch and

SW2 were prepared in the photography switch, and 12 was prepared in the control unit 11.
[0008] Next, operation about the white balance amendment by this invention is explained with the flow chart of drawing 2 .
[0009] First, when a switch SW1 is ON in Step S1, after it progresses to Step S2 and the colorimetry sensor 10 of outside ** performs a colorimetry, it progresses to Step S3. When a switch SW2 is ON in Step S3, it progresses to Step S4, and it returns to Step S1 at the time of OFF. At Step S4, the focal distance of a taking lens 1 is locked, the focal distance is read, and it progresses to Step S5.
[0010] At Step S5, it progresses to Step S6, after restricting or changing the data which carried out the colorimetry at Step S2 according to the focal distance read at Step S4. At Step S6, photography is performed and it is ended, after amending a white balance according to the colorimetry data changed at Step S5.
[0011] In addition, in the case of an outside ** sensor method, when the colorimetry value of the colorimetry sensor 10 is close to daylight color, change of colorimetry data does not change colorimetry data, even if a focal distance changes, but when that is not right, responds to change of a focal distance, and restricts or changes colorimetry data. Moreover, when a colorimetry value is close to the self-luminous color, such as daylight color, an electric bulb color, and a fluorescent lamp color, even if a focal distance changes, colorimetry data are not changed, but when that is not right, in the case of a TTL method, it responds to change of a focal distance, and it restricts or changes colorimetry data. Moreover, in the case of a hybrid, the colorimetry value of the colorimetry sensor 10 is compared with the colorimetry value of TTL, when each colorimetry value is a near value, even if a focal distance changes, colorimetry data are not changed, but when that is not right, it responds to change of a focal distance, and colorimetry data are restricted or changed.
[0012] As operation of the camera of drawing 1 , after the light from a taking lens 1 is exposed by the exposure control means 2, such as a shutter, it is changed into an electric picture signal by the image pck-up sensor 3. This picture signal is sampled by predetermined frequency with a sample hold circuit 4, and is changed into digital image data by A/D converter 5. This image data is recorded on external storage 8 through an interface circuitry 7.
[0013] Moreover, when white balance amendment is an outside ** sensor method, colorimetry data are obtained from the colorimetry sensor 10. In the case of a TTL method, it asks for colorimetry data from the output signal of the image pck-up sensor 3, i.e., the output data of A/D converter 5, according to an operation. When performing white balance amendment, the above-mentioned colorimetry data will be changed according to the focal distance of a taking lens 1.
[0014]
[Effect of the Invention] According to this invention, by having constituted so that colorimetry data might be changed according to the focal distance of a taking lens, the amendment which the white balance when especially a focal distance is long mistook can be lost, and the effect that the screen which has an always good white balance can be obtained is acquired.

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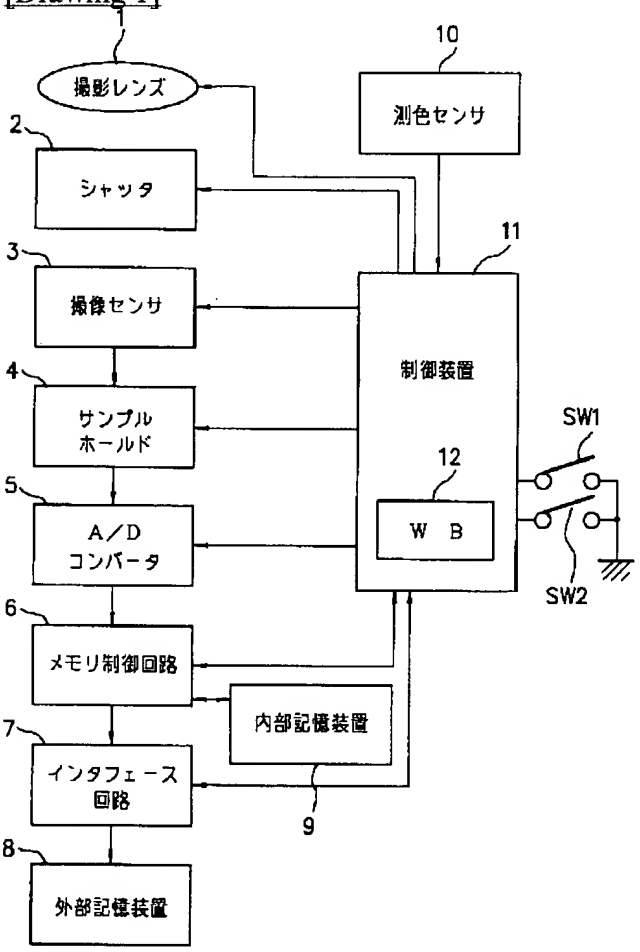
DRAWINGS

[Drawing 1]



[Drawing 2]

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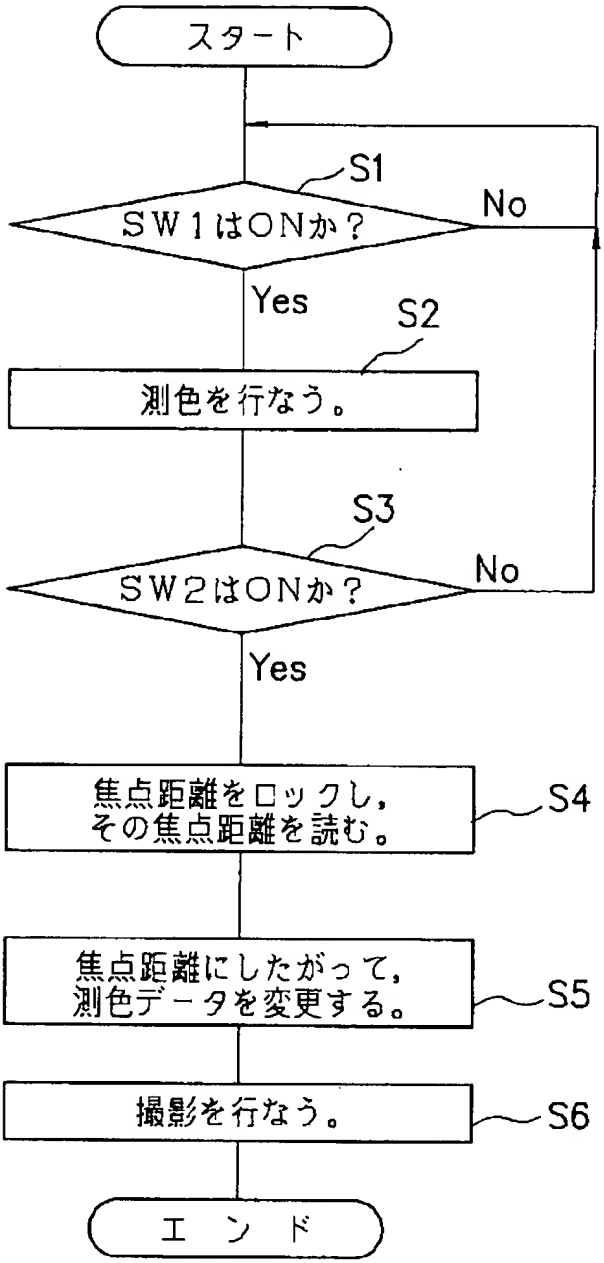

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